U.S. ENVIRONMENTAL PROTECTION AGENCY
POLLUTION/SITUATION REPORT
Morrow Lake Sediment Release - Removal Polrep
Final Removal Polrep

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region V

Subject: **POLREP #2**
Final
Morrow Lake Sediment Release
C5SC
Comstock, MI
Latitude: 42.2825160 Longitude: -85.4920006

To: Douglas Ballotti, US EPA Region 5
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From: Jeff Kimble, OSC
Date: 2/18/2021
Reporting Period: 11/5/2020 - 2/12/2021

1. Introduction

1.1 Background

Site Number:	C5SC	**Contract Number:**	
D.O. Number:		**Action Memo Date:**	
Response Authority:	CERCLA	**Response Type:**	PRP Oversight
Response Lead:	PRP	**Incident Category:**	Removal Assessment
NPL Status:	Non NPL	**Operable Unit:**	
Mobilization Date:	10/5/2020	**Start Date:**	10/5/2020
Demob Date:	1/27/2021	**Completion Date:**	2/12/2021
CERCLIS ID:		**RCRIS ID:**	
ERNS No.:		**State Notification:**	EGLE
FPN#:		**Reimbursable Account #:**	

1.1.1 Incident Category
PRP Oversight

1.1.2 Site Description
The Morrow Lake Dam is located in Comstock, Michigan. The hydroelectric dam holds back waters of the Kalamazoo River in a 1000 acre Morrow Lake impoundment. A drawdown of Morrow Lake in late 2019 to perform emergency repairs on the tainter gates of the dam resulted in the discharge of lake bottom sediments downstream of the dam. Morrow Lake sediments are known to contain polychlorinated biphenyls (PCB) contamination.

1.1.2.1 Location
The Morrow Lake Dam is located at 6900 East Michigan Avenue, Comstock, Kalamazoo County, Michigan at approximately River Mile 76.5 on the Kalamazoo River. The dam is owned by Eagle Creek Renewable Energy, LLC (ECRE) and operated by STS Hydropower, LLC (STS).

1.1.2.2 Description of Threat
In November 2019, the Morrow Lake Dam spillway gates required immediate emergency repairs and a partial lake drawdown to relieve gate pressure and eliminate the risk of uncontrolled flooding. During inspection of the gates, they were found to be in need of replacement instead of repairs, with the time needed for full replacement expected to continue until December 2020. Following the drawdown, the Michigan Department of Environment, Great Lakes and Energy (EGLE) received reports of increased turbidity and fine sediment deposits downstream of the dam. EGLE issued Notices of Violation (NOVs) on July 8, 2020 and September 16, 2020, requiring STS to develop a plan to assess the volume, location, depth and composition of sediments downstream that were mobilized by the drawdown and to sample these sediments for PCBs and hydrocarbons, as historic sampling results have documented the presence of PCB contamination in Morrow Lake sediments. EGLE requested EPA assistance on September 24, 2020. All documentation can be found in the 'Documents' section of the website.

The sediment release increased turbidity levels in the Kalamazoo River at least 30 river miles downstream, which has been documented by EGLE with direct read instrumentation. The Kalamazoo River downstream Morrow Lake is currently part of

the Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund site, where ongoing remedial activities have been underway to clean up PCB contamination. Potentially Responsible Parties (PRPs) conducting cleanup work have expressed concerns to US EPA and EGLE on the impact of the sediment release to ongoing cleanup efforts. The increased turbidity impacted water quality and is suspected to have impacted fish and other wildlife downstream.

1.1.3 Preliminary Removal Assessment/Removal Site Inspection Results
A preliminary assessment by EPA, EGLE, DNR and a START personnel was conducted on October 5-6, 2020. Dozens of mobilized sediment deposits were documented over 10 river miles downstream of Morrow Lake Dam. Sediment deposit thickness was documented using poling methods, with suspected mobilized sediment depths found up to 10 feet thick. In addition, upstream reconnaissance was conducted on Morrow Lake to document existing sediment control measures installed by STS to minimize sediment mobilization.

2. Current Activities

2.1 Operations Section

2.1.1 Narrative
A bathymetric survey and a preliminary sediment sampling effort was completed by a contractor to STS, with split sampling conducted by EPA's START contractor and EGLE.

2.1.2 Response Actions to Date

Sediment control measures were maintained upstream and downstream of the dam by contractors to STS until the tainter gate replacement project was completed, Morrow Lake was allowed to refill to normal capacity, and the hydroelectric dam was returned to operation in late December 2020. The upstream sediment controls were removed as the impoundment was being refilled. The downstream sediment controls remain in place as of February 2021.

A contractor to STS (AECOM) completed a bathymetric survey and sediment sampling effort both Morrow Lake (upstream) and Kalamazoo River (downstream) sediments to characterize the extent of mobilized sediment and determine if contaminants mobilized downstream of Morrow Lake Dam. US EPA's START contractor and EGLE collected split sediment samples from those collected by AECOM. Final reports with details and data were developed by both AECOM and START, which are available on the project website (see Section 6.1).

US EPA reviewed data from the sediment sampling. As PCBs are a known contaminant in Morrow Lake sediments, US EPA's focus was on total PCB concentrations, as this contaminant is a priority contaminant in the Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site, located immediately downstream of Morrow Dam to Lake Michigan.

2.1.3 Enforcement Activities, Identity of Potentially Responsible Parties (PRPs)
The Morrow Lake Dam is owned by Eagle Creek Renewable Energy, LLC (ECRE) and operated by STS Hydropower, LLC (STS).

2.1.4 Progress Metrics

Regional Metrics					
Contaminant(s) of Concern			PCBs		
Administrative and Logistical Factors (Place X where applicable)					
	Precedent-Setting HQ Consultations (e.g., fracking, asbestos)	X	Community challenges or high involvement		Radiological
	More than one PRP	X	Endangered Species Act / Essential Fish Habitat issues		Explosives
	AOC		Historic preservation issues		Residential impacts
	UAO		NPL site		Relocation
	DOJ involved		Remote location		Drinking water impacted
	Criminal Charges Have Been Filed*		Extreme weather or abnormal field season		Environmental justice
	Tribal consultation or coordination or other issues	X	Congressional involvement	X	High media interest
	Statutory Exemption for $2 Million		Statutory Exemption for 1 Year		Active fire present
	Hazmat Entry Conducted – Level A, B or C		Incident or Unified Command established		Actual air release (not threatened)

2.2 Planning Section

2.2.1 Anticipated Activities
The hydroelectric dam has returned to normal operations and Morrow Lake has been refilled to normal water levels. Data and information collected from the initial phase of surveying and sampling may be utilized to develop subsequent sampling and characterization efforts as directed by EGLE.

2.2.1.1 Planned Response Activities
US EPA issued a letter to EGLE, dated January 21, 2021, indicating that based on a review of the data collected by both START and AECOM, US EPA does not anticipate initiating a response action pursuant to CERLCA authorities. US EPA's cleanup goal for sediments is 1 mg/kg (1 ppm) for total PCBs on the Superfund Site. Though the cleanup standard for sediments selected for the Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site is 0.33 ppm for total PCBs, it is calculated as a surface-weighted average concentration (SWAC)[1]. This standard is set forth in the Record of Decision(s) for Areas 1 & 2 of the Site, and is expected to be sufficiently protective of human health (anglers, recreationists and residents) as well as ecological (wildlife) receptors. The standard was generated from the Risk Assessment conducted for

the Superfund Site. **US EPA has been achieving the SWAC of 0.33 ppm total PCBs for sediments by removing contaminated sediments with PCBs at levels greater than or equal to 1 ppm total PCBs.**

[1] A surface-weighted average concentration (SWAC), is a method of spatially calculating the mean (average) concentration of a constituent (i.e., total PCBs) in the sediment surface. Samples are collected throughout the area of concern, representative sub-areas are generated for each sample location, and a subarea-weighted concentration is calculated to produce the SWAC. The subareas may be generated using several different methods, such as grids or stream tubes.

Additional phases of bathymetric surveying and sediment sampling may necessary once data and results are more thoroughly reviewed by EGLE to support further response actions by STS. Future response actions, such as dredging and construction of sediment traps, conducted by STS would be under directive and oversight by EGLE.

2.2.1.2 Next Steps
As requested by EGLE, US EPA will continue to coordinate with ECRE, STS, AECOM, EGLE and DNR and provide technical input on additional sampling efforts and future response activities as requested.

2.2.2 Issues
None

2.3 Logistics Section
STS and their contractors (AECOM and SWAT Environmental of Michigan) conducted field logistics during the project in coordination with START.

2.4 Finance Section

2.4.1 Narrative
START contractor TetraTech, Inc. and Mannik Smith Group assisted US EPA with oversight of field assessment and sampling activities.

Estimated Costs *

	Budgeted	Total To Date	Remaining	% Remaining
Extramural Costs				
TAT/START	$35,000.00	$35,000.00	$0.00	0.00%
Intramural Costs				
USEPA - Direct	$10,000.00	$5,000.00	$5,000.00	50.00%
Total Site Costs	$45,000.00	$40,000.00	$5,000.00	11.11%

* The above accounting of expenditures is an estimate based on figures known to the OSC at the time this report was written. The OSC does not necessarily receive specific figures on final payments made to any contractor(s). Other financial data which the OSC must rely upon may not be entirely up-to-date. The cost accounting provided in this report does not necessarily represent an exact monetary figure which the government may include in any claim for cost recovery.

2.5 Other Command Staff

2.5.1 Safety Officer
STS and their field contractors, AECOM and SWAT Environmental of Michigan had on site safety officers serving in this role when field activities were underway by their respective field crews.

2.5.2 Liaison Officer
OSCs Kimble and Ruesch served this role.

2.5.3 Information Officer
OSCs Kimble and Ruesch and CIC Diane Russel served this role.

3. Participating Entities

3.1 Unified Command
NA

3.2 Cooperating Agencies
Michigan Department of Environment, Great Lakes and Energy (EGLE)
Michigan Department of Natural Resources (DNR)

4. Personnel On Site
The following personnel related to the field assessment activities were periodically on site during the reporting period:

AECOM 3
DNR 1
EGLE 1
START 1
STS 2
SWAT 4
US EPA 1

Total 13

5. Definition of Terms

CIC	Community Involvement Coordinator
EGLE	Michigan Department of Environment, Great Lakes and Energy
ECRE	Eagle Creek Renewable Energy, LLC
MDNR	Michigan Department of Natural Resources
mg/kg	milligrams per kilogram
OSC	On Scene Coordinator
PCB	Poly-chlorinated Biphenyls
PolRep	Pollution Report
ppm	parts per million
RM	River Mile
START	Superfund Technical Assessment & Response Team (US EPA contractor)
STS	STS Hydropower, LLC
US EPA	United States Environmental Protection Agency

6. Additional sources of information

6.1 Internet location of additional information/report

https://response.epa.gov/morrowlake

6.2 Reporting Schedule

This is the final report on the project by US EPA.

7. Situational Reference Materials

Michigan DNR: https://www.michigan.gov/dnr/0,4570,7-350-79137_79770_79781-511949--,00.html
Michigan EGLE: https://www.michigan.gov/egle/0,9429,7-135-3313_56784-270377--,00.html